



**Industries of the Future – West Virginia**

# **IOF-WV and Observations on Workforce Issues**

Workforce West Virginia Annual Meeting

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# Industrial Energy Consumption

	<b>Annual Industrial Energy Consumption (2001) <math>10^{12}</math> BTUs</b>	<b>BTU/\$GSP</b>
PA	1,285.60	9,569
OH	1,428.9	10,633
KY	845.9	16,043
TN	745.5	12,143
WV	311.4	17,358

2004 U.S. Industrial Energy Intensity = 11,984 BTU/\$GDP

# WV Energy-Intensive Industry Sectors

<b>Industry Sectors</b>	<b>GSP (\$M)</b>	<b>Employment</b>	<b>GSP/Emp</b>
Primary & Fabricated Metals	1,019	14,019	\$72,687
Stone, Clay, & Glass	328	4,385	\$74,800
Chemicals & Polymers	1,1602	11,116	\$144,116
Rubber & Plastics	286	4,037	\$70,845
Wood Products Manufacturing	642	9,208	\$69,722
<b>Total for IOF-WV Sectors</b>	<b>3,877</b>	<b>42,765</b>	<b>\$90,658</b>
Total for WV Manufacturing	5,431	65,672	\$82,699
<b>IOF-WV % of Manufacturing</b>	<b>71%</b>	<b>65%</b>	
Fossil Fuel Production	3,343	25,281	\$132,234
State Totals	49,903	898,316	

\*Source: U.S. Department of Commerce, Bureau of Labor Statistics, 2004 data, [www.bea.doc.gov](http://www.bea.doc.gov)

# What is IOF-WV?

- IOF-WV is a cooperative effort between the WV Development Office and WVU.
- The goal is partnership projects that improve energy efficiency and productivity of energy-intensive manufacturing and production companies.
- IOF-WV started in 1997 – modeled after the U.S. DOE's national IOF program – now referred to as the Industrial Technology Program (ITP).
  - The ITP budget:
    - FY 2005 - \$73 million
    - FY 2006 - \$57 million
    - FY 2007 administration request - \$46 million

# IOF-WV Facts

- West Virginia was the first state to develop a state-level IOF program
- Approximately 200 proposals written involving 191 partners
- 45 competitively funded R&D projects with 70 industry partners and 26 WVU faculty members
- R&D value to the state ~ \$29 million
  - federal and state funding ~ \$19 million
  - non-federal cost share ~ \$10 million

# IOF-WV Project Areas and Initiatives

- Intelligent Potroom Operation
- Multifunctional Metallic and Refractory Materials for Molten Metal Handling
- Wood/polymer composites
- Energy for Energy-Intensive Industry Clusters – Marshall County Project
- Plant-wide energy assessments –
  - Bayer Polymers - \$1.4 million in annual energy savings
  - Alcan/Pechiney - \$2.5 million in annual energy savings
  - PPG – assessment in progress

# **Energy Savings Programs**

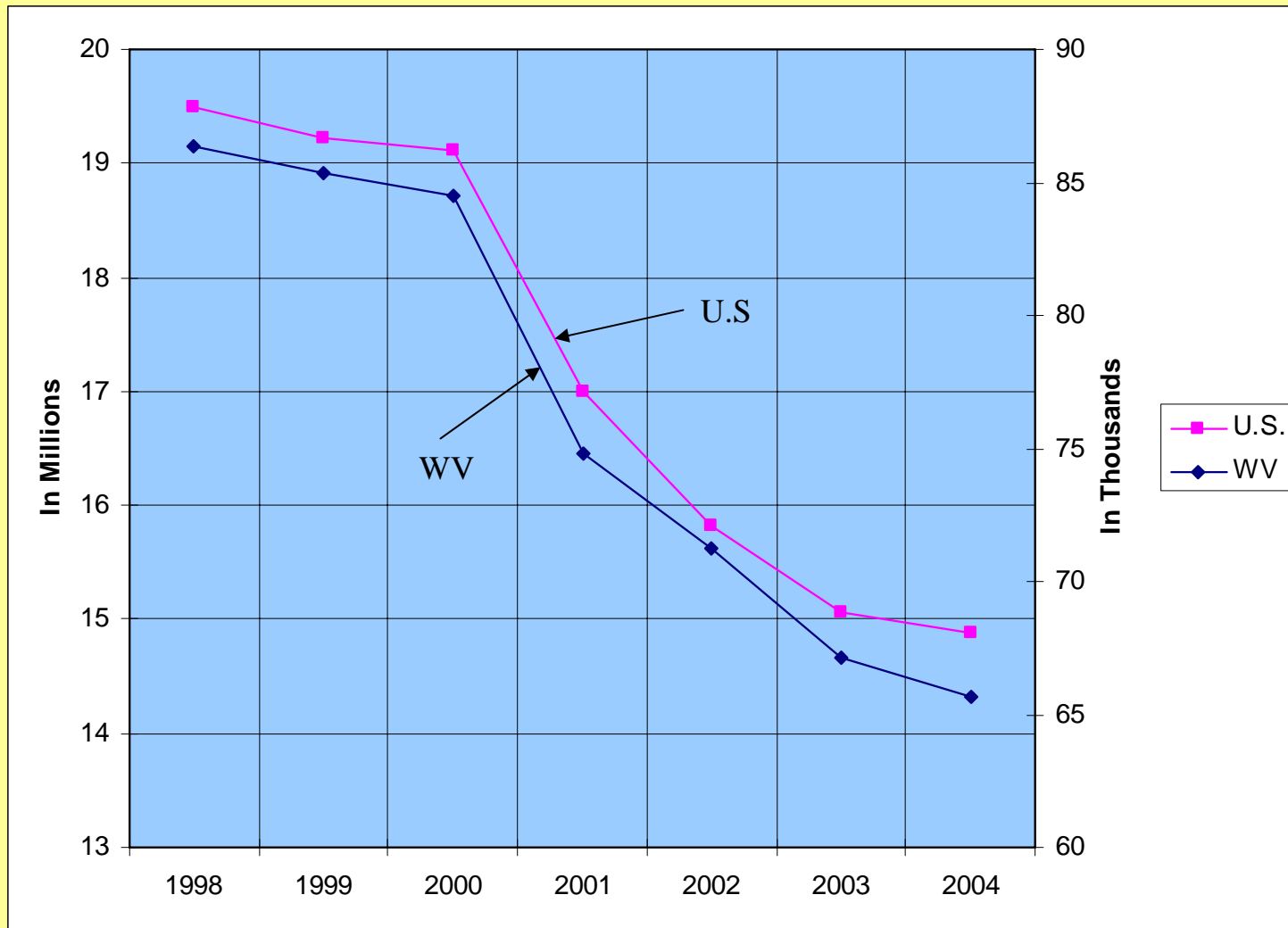
- **WVU Industrial Assessment Center – B. Gopalakrishnan**
- **Industrial Gas Utilization Center – Larry Banta, Kathleen Cullen**
- **Projects with Industry Program – Ken Means**
- **Glass Industry Assistance Program – Larry Banta**
- **Wood Industry Assistance Program – Joe McNeel**

# IOF-WV Team

- IOF-WV Research Groups – Universities, National laboratories
- Industry partners
- Co-Directors: Carl Irwin, WVU and Jeff Herholdt, WVDO
- Engineering Scientist: Search open
- Program Coordinators: Kathleen Cullen, Angela Shock, Marie Butler

# Manufacturing Employment

U.S.  
-24%



WV  
-24%

Reference: U.S. DOC Bureau of Economic Analysis, [www.bea.gov](http://www.bea.gov)

# Skills Shortage

<b>Employee category</b>	<b>% anticipating shortage</b>
Skilled production	80
Scientists and engineers	35
Unskilled production	25
Sales and marketing	18
Management and administration	16
Customer service	8
Other	5
None	4

Reference: National Association of Manufacturers and Deloitte Consulting LLP, *Industry Week* Special Report, September 1, 2006, [www.industryweek.com](http://www.industryweek.com)

# Workforce Related Issues

- ITP Industry Visions Industry Visions and Technology Roadmaps
  - <http://www1.eere.energy.gov/industry/>
- ITP training programs for employees
  - Compressed Air Systems
  - Pumping Systems
  - Process Heating Systems
  - Steam Systems
  - Fan Systems
- WV Manufacturers Association

# **Proposal to NSF Partnerships for Innovation Program**

- **Partnerships for Innovation – West Virginia (PFI-WV)**
  - **Directory of Innovations**
  - **Student Internship Program**
  - **“Industry Pull” Workshops**
  - **Assessment/Commercialization Pathways and Partners**
  - **“Test case” Innovation Projects**

# Concerns for West Virginia

- Loss of almost 19,000 manufacturing jobs since 2000, -22%
  - (U.S DOC Bureau of Economic Analysis, <http://www.bea.gov>)
- Brain drain of college graduates, -60% for some degrees
  - (Eric Bowen, *Morgantown Dominion Post*, May 21, 2006), <http://olive.dominionpost.com/>)
- Imported Labor
  - (Beth Vorhees and Greg Collard, *Outreach*, WV Public Broadcasting, Aug. 24, 2006, <http://www.wvpubcast.org/>)

# Hopes for the Future

- Protea Biosciences
- Eagle Glass
- Alcan Rolled Products/Century Aluminum
- “Manufacturing Deserves Closer Examination” – Tom Witt, *State Journal*, April 14, 2006, <http://statejournal.com/>

# For More Information

- ITP website:  
<http://www1.eere.energy.gov/industry/>
- IOF-WV website:  
<http://www.iofwv.nrcce.wvu.edu/>
- IOF-WV contact list
- 10<sup>th</sup> Annual IOF-WV Symposium  
**November 7-9, Charleston, WV**

Thank you!